Claims

1. Membrane, that can be manufactured in that a polymer or polymer mix is shaped as required, is charged with a gas at above atmospheric pressure before or after shaping, then the gas-charged polymer is foamed at a temperature above the glass transition temperature of the polymer/gas mixture, and lastly, the foam structure is stabilised by cooling, characterised in that the gas charged polymer is foamed using an amount of 0.05% to 4.5% by weight of a fluid that dissolves or swells the polymer.

2. Membrane according to claim 1, characterised in that after shaping, the polymer or polymer mix is charged with the gas at a temperature below the glass transition temperature of the polymer gas mixture, and then is foamed by increasing the temperature to above the glass transition temperature of the polymer/gas mixture.

3. Membrane according to claim 1, characterised in that gas-charging is done after shaping at a temperature above the glass transition temperature of the polymer/gas mixture, and then foaming by reduction of pressure.

4. Membrane according to claim 1, characterised in that before shaping, the molten mass of polymer or polymer mix is charged with the gas in an extrusion tool, and upon extrusion is foamed due to the resultant drop in pressure that occurs.

5. Membrane according to one of claims 1 to 4, characterised in that the fluid that

dissolves or swells the polymer is an organic liquid, preferably one that dissolves the polymer.

6. Membrane according to one of claims 1 to 5, characterised in that when foaming takes place, the polymer contains the fluid that dissolves or swells the polymer in the form of solvent residue or in the form of infiltrated solvent.

7. Membrane according to one of claims 1 to 6, characterised in that the amount of the fluid that dissolves or swells the polymer is optimised depending on the polymer used, the solvent used, the gas-charging pressure when the polymer is charged with the gas, and the foaming temperature.

8. Membrane according to one of claims 1 to 7, characterised in that carbon dioxide is used as the charging gas.

9. Membrane according to one of claims 1 to 8, characterised in that the polymer is saturated under pressure with the charging gas.

10. Membrane according to one of claims 1 to 9, characterised in that the foam structure is stabilised by chilling after foaming.

11. Membrane according to one of claims 1 to 10, characterised in that a foaming temperature of 100 to 200°C is employed.

12. Membrane according to one of claims 5 to 11, characterised in that tetrahydrofuran, 1,2-dichloroethane or 1-methyl-2-pyrrolidone is used as the organic liquid that dissolves or swells the polymer.

13. Membrane according to one of claims 1 to 12, characterised in that a polysulfone, polyethersulfone, polycarbonate, cellulose or a cellulose derivative is used as the polymer.

14. Membrane according to one of claims 1 to 13, characterised in that it is in the form of a surface fibre or hollow fibre membrane.

15. Use of a surface or hollow fibre membrane manufactured according to claim 14 for medical purposes, in particular for haemodialysis, blood filtration, haemodiafiltration, plasma phoresis or immunotherapy, or for micro or ultrafiltration.